

# INTERNATIONAL SEARCH REPORT

PCT/GB2004/004944

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H01L21/18 H01L21/266

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>QIAN Y H ET AL: "Three band-gap QW intermixing in InP/InGaAs/InGaAsP system for monolithically integrated optical switch"</p> <p>LASERS AND ELECTRO-OPTICS SOCIETY ANNUAL MEETING, 1998. LEOS '98. IEEE ORLANDO, FL, USA 1-4 DEC. 1998, PISCATAWAY, NJ, USA, IEEE, US, vol. 2, 1 December 1998 (1998-12-01), pages 194-195, XP010317604 ISBN: 0-7803-4947-4 cited in the application page 195, line 3 - line 18</p> <p style="text-align: center;">----- -/--</p>	1-23

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

2 March 2005

Date of mailing of the international search report

11/03/2005

Name and mailing address of the ISA

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PCT/GB2004/004944

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>MIYAZAWA T ET AL: "COMPOSITIONAL DISORDERING OF INO.53GA0.47AS/INO.52AL0.48AS MULTIQUNTUM WELL STRUCTURES BY REPETITIVE RAPID THERMAL ANNEALING"</p> <p>JAPANESE JOURNAL OF APPLIED PHYSICS, PUBLICATION OFFICE JAPANESE JOURNAL OF APPLIED PHYSICS. TOKYO, JP, vol. 28, no. 5, PART 2, 1 May 1989 (1989-05-01), pages L730-L733, XP000030441</p> <p>ISSN: 0021-4922</p> <p>cited in the application</p> <p>page L730 - page L731</p>	1-15, 17-23
Y	<p>LI E H: "Advances in intermixed quantum well devices"</p> <p>ELECTRON DEVICES MEETING, 1998. PROCEEDINGS. 1998 IEEE HONG KONG HONG KONG 29 AUG. 1998, PISCATAWAY, NJ, USA,IEEE, US, 1998, pages 60-65, XP010318832</p> <p>ISBN: 0-7803-4932-6</p> <p>page 61, paragraph 3</p>	1,19,22, 23
Y	<p>UTPAL DAS ET AL: "TAILORING OF ELECTRON AND HOLE ENERGIES IN STRAINED GAASP/ALGAAS QUANTUM WELLS USING FLUORINE-IMPURITY-INDUCED LAYER DISORDERING"</p> <p>APPLIED PHYSICS LETTERS, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, vol. 60, no. 2, 13 January 1992 (1992-01-13), pages 210-212, XP000257167</p> <p>ISSN: 0003-6951</p> <p>page 210, left-hand column</p>	10
Y	<p>SOREL M ET AL: "Monolithic integration of InGaAs/AlGaInAs mach-zehnder interferometers using quantum well intermixing"</p> <p>LEOS 2003. 16TH. ANNUAL MEETING OF THE IEEE LASERS &amp; ELECTRO-OPTICS SOCIETY. TUCSON, AZ, OCT. 27 - 28, 2003, ANNUAL MEETING OF THE IEEE LASERS AND ELECTRO-OPTICS SOCIETY, NEW YORK, NY : IEEE, US, vol. VOL. 1 OF 2, 26 October 2003 (2003-10-26), pages 439-440, XP010676256</p> <p>ISBN: 0-7803-7888-1</p> <p>page 439</p>	16

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PIVA P G ET AL: "BANDGAP TUNING OF SEMICONDUCTOR QUANTUM WELL STRUCTURES USING ION IMPLANTATION" SUPERLATTICES AND MICROSTRUCTURES, ACADEMIC PRESS, LONDON, GB, vol. 15, no. 4, 1994, pages 385-389, XP000608697 ISSN: 0749-6036 abstract; figure 1	1-23
A	US 6 027 989 A (POOLE ET AL) 22 February 2000 (2000-02-22) figures 2,3,6-9	1-23

# INTERNATIONAL SEARCH REPORT

PCT/GB2004/004944

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 6027989	A	22-02-2000	DE	69602429 D1	17-06-1999
			DE	69602429 T2	23-09-1999
			EP	0812485 A1	17-12-1997
			CA	2212751 A1	06-09-1996
			WO	9627226 A1	06-09-1996
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